ANNUAL PROGRESS REPORT
FOR THE
POST REMEDIATION CARE OF
THE GROUNDWATER REMEDIATION SYSTEM
AT THE UTI CORPORATION SITE

UTI Corporation
(now UTI Holdings, LLC (d/b/a Lake Region Medical)
200 West Seventh Ave., Trappe, PA

MAY 2017

Prepared by:
Marks Environmental, Inc.
140 Bollinger Road
Elverson, PA 19520

SECTION 1 INTRODUCTION

UTI Holdings LLC (UTI), has been actively remediating groundwater at their Collegeville, Pennsylvania facility located at 200 West 7th Ave., Trappe Borough, Montgomery County, Pennsylvania (site) since 1978. The site is approximately 40 acres in size.

Since 1992 remediation has been conducted under an Administrative Order on Consent, Docket No. RCRA-III-055-CA, executed by Owner and the United States Environmental Protection Agency (USEPA) in March, 1992 (Consent Order). Because the groundwater contamination at the site had been determined to be primarily present within the fractured bedrock (Brunswick Formation), and has historically involved the presence of dense non-aqueous phase liquid (DNAPL) contaminants (trichloroethylene [TCE] and 1,1,1 trichloroethane [TCA]), in 2010 UTI began discussions with the USEPA to allow the consideration of a Technical Impracticability (TI) Waiver for the site. A TI Waiver would allow the establishment of alternative points of compliance (POCs) for the site.

UTI submitted the *Technical Impracticability Determination for Groundwater Remediation, Accellent Inc., Montgomery County, Collegeville, PA* (TI Waiver Request), prepared by Marks Environmental, Inc., in June 2012. The USEPA approved the TI Waiver request for the site on August 22, 2013. A TI Zone was established, within which, attainment was deemed to be technically impracticable. POCs to facilitate ongoing groundwater monitoring, were established outside of the TI Zone.

A Post-Remediation Care Plan (PRCP) was prepared that presents the groundwater monitoring and routine operation and maintenance (O&M) requirements for the ongoing operation of the Site groundwater extraction system. Sampling and reporting requirements, and an environmental covenant (EC) (currently under review by the USEPA), that will ensure the continued protection of human health and the environment, are also included in the PRCP. Together, the PRCP and the EC will provide an enforceable mechanism for site operations following termination of the Consent Order (pending).

The PRCP was approved by the USEPA on November 20, 2015 (exclusive of the EC) and the site groundwater monitoring and reporting has been conducted under the PRCP requirements beginning in May 2016. Once approved by the USEPA, the EC will replace the Consent Order as the legal instrument under which the continued operation of the groundwater pump and treat system at the site will be conducted.

This Annual Progress Report has been prepared in accordance with the reporting requirements of the PRCP.

This report covers the period from May 2016 through February 2017. Sampling of POC monitoring wells and the TI Zone monitoring wells at the site is required annually, with the exception of POC monitoring well UTM-7. Well UTM-7 required quarterly sampling for the first year in order to establish enough data points to allow valid statistical analysis of the results, if required. The sampling requirements and well types are summarized in Table 1 below:

Table 1
Annual Groundwater Monitoring Sample Collection Locations

Well	Sampling Frequency	Sample Parameters and Analysis	
		Compound	**EPA Analytical Method**
Point of Compliance Wells			
UTM-4	Annual	TCE/TCA	8260B
UTM-7*	Quarterly/Annual		
UTM-9	Annual		
UTM-21	Annual		
UTM-23	Annual		
		TI Zone Monitoring Wells	
UTM-1	Annual	TCE/TCA	8260B
UTM-6	Annual		
UTM-8	Annual		
UTM-10	Annual		
UTM-11	Annual		
UTM-14	Annual		
UTM-17	Annual		
UTM-20	Annual		
UTM-22	Annual		
		QA/QC Samples	
Trip Blank	One per shipment	TCE/TCA	8260B

**Note: POC well UTM-7 will be monitored quarterly for four quarters, and annually thereafter, in order to establish a recent data set for the statistical analyses.*

Figure 1 shows the locations of the POC and TI Zone monitoring wells. Groundwater sampling was conducted on May 31, 2016 (UTM-7 only), August 31, 2016 (UTM-7 only), November 14, 15, and 25, 2016 (annual sampling round), and February 27, 2017 (UTM-7 only). Future annual groundwater sampling events will be conducted during the First Quarter (February), consistent with the PRCP. The condition of the well network at the site is good. All monitoring wells have locked steel protective casings.

Sampling was performed using the low-flow sampling method (EPA, Puls and Barcelona, 1995), consistent with historic sampling at the site. A trip blank was submitted to the laboratory for quality assurance/quality control (QA/QC) purposes for each shipment of samples. All samples were placed into a pre-chilled cooler and submitted under chain-of-custody documentation to a Pennsylvania-certified analytical laboratory (currently TestAmerica Pittsburgh Laboratory) for TCE/TCA analysis in accordance with USEPA Method 8260B.

SECTION 2 RESULTS

Groundwater Quality

The results from the quarterly and annual sampling of the POC wells are summarized in Table 2 below.

Table 2 - Point of Compliance Groundwater Monitoring Results

	May 2016		August 2016		Nov. 2016		Feb. 2017	
WELL #	**TCE**	**TCA**	**TCE**	**TCA**	**TCE**	**TCA**	**TCE**	**TCA**
UTM-4	**NA**	**NA**	NA	NA	**0.46J**	1U	NA	NA
UTM-7	**0.50J**	**5.6**	**0.46J**	**0.29J**	**0.49J**	**0.27J**	1U	1U
UTM-9	NA	NA	NA	NA	**0.25J**	1U	NA	NA
UTM-21	NA	NA	NA	NA	**0.47J**	**0.91J**	NA	NA
UTM-23	NA	NA	NA	NA	1U	1U	NA	NA

NOTES:
All concentrations reported in micrograms per liter (µg/L).
U - Not detected, reporting limit shown
NA - Not Analyzed
J - Result is an estimated value below the laboratory reporting limit.

Table 3 – TI Zone Groundwater Monitoring Results

	Nov-17	
WELL #	**TCE**	**TCA**
UTM-1	1300	120
UTM-6	2.1	1.7
UTM-8	0.37J	1U
UTM-10	9.2J	150
UTM-11	0.64J	1U
UTM-14	0.90J	0.83J
UTM-17	21	15
UTM-20	8.6	9
UTM-22	1.6	3

NOTES:
All concentrations reported in micrograms per liter (µg/L).
U - Not detected, reporting limit shown
NA - Not Analyzed
J - Result is an estimated value below the laboratory reporting limit.

As seen in Table 2, there were no exceedances of the USEPA Maximum Contaminant Level (MCL) for any of the POCs during the reporting period covered in this report. The TI Zone monitoring wells detected TCE and TCA at concentrations consistent with past sampling events. The TCE and TCA concentrations continue to show a long-term decreasing trend in the site groundwater. Concentrations detected in recovery well UTM-11 have decreased significantly since the modification (deepening from 100' to 205' bgs) of this well in 2015. The average pumping rate at UTM-11 has increased significantly since the deepening of the well.

The laboratory analytical reports are included in Appendix A.

Statistical Analysis

In accordance with the PRCP, any POC that had an exceedance of an MCL during the last eight sampling rounds, will be statistically evaluated to determine whether the statistical average (95% Upper Confidence Level [UCL]) exceeds the MCL. In the event of a non-detect the laboratory reporting limit is used as the value for the purpose of statistical analysis. The statistical evaluation is discussed below.

Only one of the five POC monitoring wells (UTM-4) had an exceedance of an MCL during the last 8 sampling rounds. TCE was detected in UTM-4 at a concentration of 11 micrograms per liter (ug/L) in February 2017. The MCL for TCE is 5 ug/L.

The statistical analysis of these data are included in Appendix B to this report. This intra-well analysis found the 95% UCL for TCE in POC monitoring well UTM-4 is 4.70, below the MCL for this compound. Therefore, no further action is necessary. Sampling of all monitoring wells will continue on an annual basis in accordance with the PRCP. The next groundwater sampling round is scheduled for February 2018.

Groundwater Recovery and Influent/Effluent Monitoring

Groundwater recovery from the two recovery wells, UTM-1 and UTM-11, continued throughout the reporting period, pursuant to Section VI.A.2 of the Consent Order. The two recovery wells operated continuously, with the exception of minor down time for system maintenance. Minor repairs and upgrades of equipment (system shutdowns of less than 8 hours duration) were made during the reporting period. Additionally, the pump in recovery well UTM-1 was replaced during early September, resulting in the recovery system being shut down from September 4, 2017 to September 5, 2017. The primary recovery well UTM-1 typically pumps between 30 and 55 gallons per minute (gpm), depending upon the water table elevation. Secondary recovery well UTM-11 has been pumping continuously at between 9 to 13 gpm since the modification (deepening) of this well in September 2015.

The monthly sampling of the air stripper influent and effluent continued in compliance with Section VI.A.3 of the Consent Order. The quarterly and bimonthly sampling and analysis of Outfall 002 (discharge from the stripping tower) has continued in accordance with UTI's National Pollutant Discharge Elimination System (NPDES) permit (No. PA0042617). There were no exceedances of the NPDES permit limits during the reporting period covered in this annual report.

Water levels continue to be measured monthly at nine on-site monitoring wells in accordance with the Delaware Basin River Commission (DRBC) permit (Docket No. D-93-61 (G)-2) for groundwater extraction at the site. There were no exceedances of the withdrawal limits in the DRBC permit during the reporting period covered in this annual report.

Activity Planned for 2017/2018:

UTI will continue the operation and maintenance of the groundwater recovery system during the 2017/2018 reporting period. The Annual Groundwater Sampling Round will be conducted during February of 2018.

The USEPA is currently reviewing the proposed Environmental Covenant (EC) that was submitted by UTI during June 2016. Once the EC has been approved by the USEPA the Consent Order will be closed and the ongoing remedial operations at the site will be conducted under the PRCP and the EC.

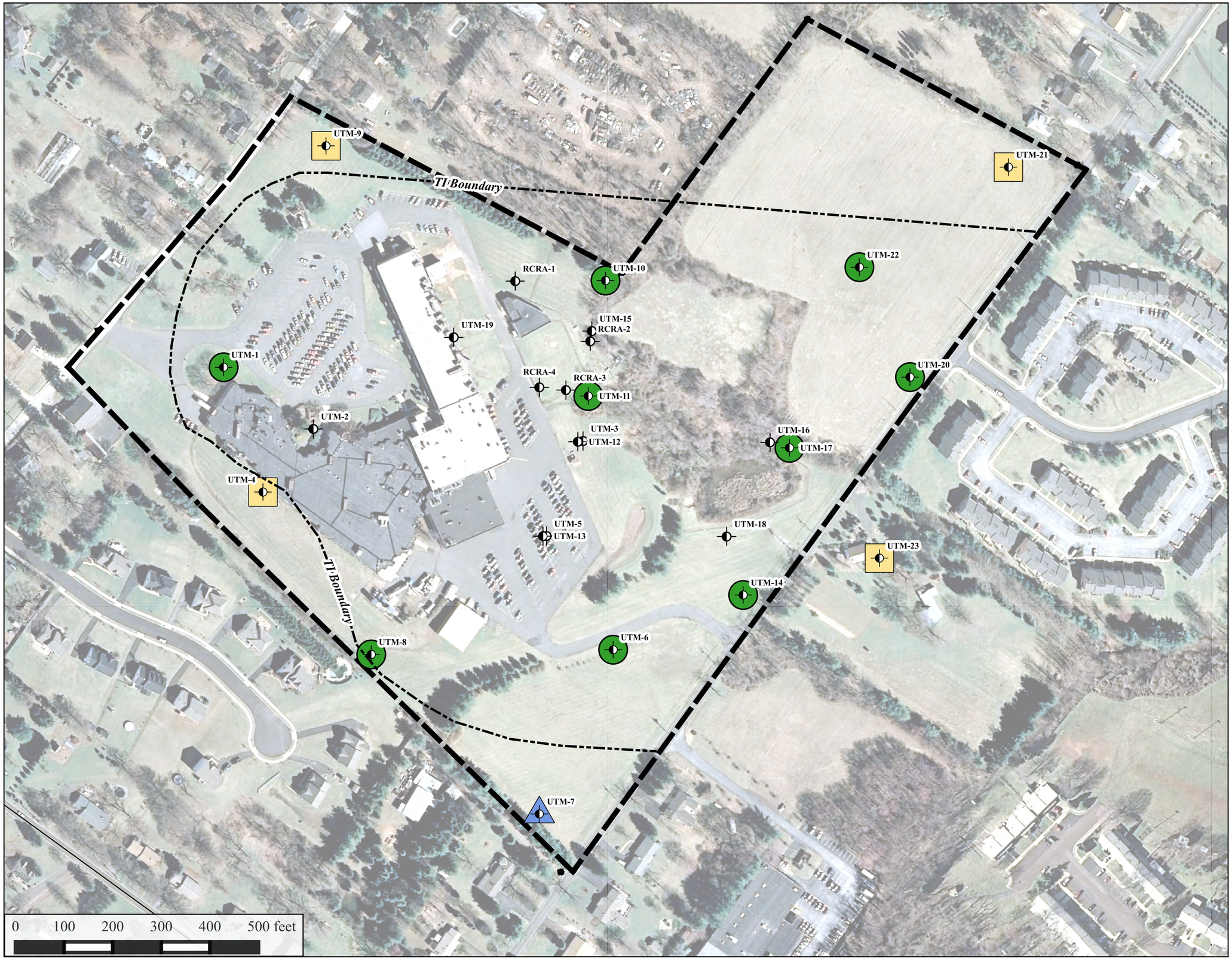
The quarterly NPDES effluent sample from Outfall 002 will be collected during the 2017/2018 reporting period in accordance with UTI's NPDES permit. Monthly water levels will continue to be measured at the site during the 2017/2018 reporting period in accordance with UTI's DRBC permit.

REFERENCES CITED

Puls, R.W. and M.J. Barcelona, December 1995, Low-Flow (Minimal Drawdown) Groundwater Sampling Procedures, United States Environmental Protection Agency (USEPA), EPA/540/5-95/504.

Marks Environmental, Inc., June 11, 2012; Request for Technical Impracticability Determination for Groundwater Remediation, Accellent Inc., Montgomery County, Collegeville, PA.

Figures



Legend

- LRM Collegeville Land Parcel Boundary - Approximate
- TI Zone Boundary
- Monitoring Well
- TI Zone Monitoring Well
- Quarterly Point of Compliance Well *
- Annual Point of Compliance Well

* Quarterly sampling for four quarters, then revert to annual sampling thereafter

N

MARKS Environmental, Inc.

Figure 1

Post-Remediation Groundwater Monitoring Points

Collegeville Pennsylvania Facility
Lake Region Medical

Appendix A

Laboratory Analytical Reports

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-55285-1
Client Project/Site: Marks, Lake Region Medical

For:
Marks Environmental, Inc.
140 Bollinger Road
Elverson, Pennsylvania 19520

Attn: Mr. Tom Marks

Authorized for release by:
6/8/2016 11:20:38 PM

David Dunlap, Senior Project Manager
(412)963-2432
dave.dunlap@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-55285-1

Job ID: 180-55285-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-55285-1

Receipt
The samples were received on 6/2/2016 9:24 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.4º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-55285-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-55285-1

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Pennsylvania	NELAP	3	02-00416	04-30-17

Sample Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-55285-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-55285-1	UTM-7	Water	05/31/16 16:40	06/02/16 09:24
180-55285-2	TB-5/31/16	Water	05/31/16 08:00	06/02/16 09:24

Method Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-55285-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-55285-1

Client Sample ID: UTM-7

Lab Sample ID: 180-55285-1

Date Collected: 05/31/16 16:40

Matrix: Water

Date Received: 06/02/16 09:24

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	178470	06/07/16 15:34	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: TB-5/31/16

Lab Sample ID: 180-55285-2

Date Collected: 05/31/16 08:00

Matrix: Water

Date Received: 06/02/16 09:24

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	178334	06/06/16 22:16	DLF	TAL PIT
	Instrument ID: CHHP6									

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Analysis

DLF = Donald Ferguson

Client Sample ID: UTM-7

Lab Sample ID: 180-55285-1

Date Collected: 05/31/16 16:40

Matrix: Water

Date Received: 06/02/16 09:24

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	5.6		1.0	0.29	ug/L			06/07/16 15:34	1
Trichloroethene	0.50	J	1.0	0.14	ug/L			06/07/16 15:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*72 - 120*		*06/07/16 15:34*	*1*
Dibromofluoromethane (Surr)	*113*		*77 - 127*		*06/07/16 15:34*	*1*
1,2-Dichloroethane-d4 (Surr)	*107*		*72 - 134*		*06/07/16 15:34*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*06/07/16 15:34*	*1*

Client Sample ID: TB-5/31/16

Lab Sample ID: 180-55285-2

Date Collected: 05/31/16 08:00

Matrix: Water

Date Received: 06/02/16 09:24

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			06/06/16 22:16	1
Trichloroethene	ND		1.0	0.14	ug/L			06/06/16 22:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*72 - 120*		*06/06/16 22:16*	*1*
Dibromofluoromethane (Surr)	*98*		*77 - 127*		*06/06/16 22:16*	*1*
1,2-Dichloroethane-d4 (Surr)	*100*		*72 - 134*		*06/06/16 22:16*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*06/06/16 22:16*	*1*

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-178334/6
Matrix: Water
Analysis Batch: 178334

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			06/06/16 13:01	1
Trichloroethene	ND		1.0	0.14	ug/L			06/06/16 13:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*72 - 120*		*06/06/16 13:01*	*1*
Dibromofluoromethane (Surr)	*98*		*77 - 127*		*06/06/16 13:01*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*		*06/06/16 13:01*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*06/06/16 13:01*	*1*

Lab Sample ID: LCS 180-178334/9
Matrix: Water
Analysis Batch: 178334

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1,1-Trichloroethane			10.0	9.03		ug/L		90	57 - 128		
Trichloroethene			10.0	11.1		ug/L		111	79 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*72 - 120*
Dibromofluoromethane (Surr)	*97*		*77 - 127*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: LCSD 180-178334/10
Matrix: Water
Analysis Batch: 178334

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane			10.0	8.80		ug/L		88	57 - 128	3	19
Trichloroethene			10.0	10.7		ug/L		107	79 - 120	4	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*72 - 120*
Dibromofluoromethane (Surr)	*97*		*77 - 127*
1,2-Dichloroethane-d4 (Surr)	*96*		*72 - 134*
Toluene-d8 (Surr)	*100*		*80 - 120*

Lab Sample ID: MB 180-178470/4
Matrix: Water
Analysis Batch: 178470

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.29	ug/L			06/07/16 12:44	1
Trichloroethene	ND		1.0	0.14	ug/L			06/07/16 12:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*72 - 120*		*06/07/16 12:44*	*1*

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 180-178470/4
Matrix: Water
Analysis Batch: 178470

Client Sample ID: Method Blank
Prep Type: Total/NA

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Dibromofluoromethane (Surr)	115		77 - 127		06/07/16 12:44	1
1,2-Dichloroethane-d4 (Surr)	109		72 - 134		06/07/16 12:44	1
Toluene-d8 (Surr)	105		80 - 120		06/07/16 12:44	1

Lab Sample ID: LCS 180-178470/5
Matrix: Water
Analysis Batch: 178470

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1,1-Trichloroethane			10.0	9.17		ug/L		92	57 - 128		
Trichloroethene			10.0	10.8		ug/L		108	79 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	94		72 - 120
Dibromofluoromethane (Surr)	100		77 - 127
1,2-Dichloroethane-d4 (Surr)	97		72 - 134
Toluene-d8 (Surr)	107		80 - 120

Lab Sample ID: LCSD 180-178470/6
Matrix: Water
Analysis Batch: 178470

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,1,1-Trichloroethane			10.0	9.15		ug/L		91	57 - 128	0	19
Trichloroethene			10.0	10.4		ug/L		104	79 - 120	4	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		72 - 120
Dibromofluoromethane (Surr)	101		77 - 127
1,2-Dichloroethane-d4 (Surr)	104		72 - 134
Toluene-d8 (Surr)	104		80 - 120

QC Association Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-55285-1

GC/MS VOA

Analysis Batch: 178334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-55285-2	TB-5/31/16	Total/NA	Water	8260C	
LCS 180-178334/9	Lab Control Sample	Total/NA	Water	8260C	
LCSD 180-178334/10	Lab Control Sample Dup	Total/NA	Water	8260C	
MB 180-178334/6	Method Blank	Total/NA	Water	8260C	

Analysis Batch: 178470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-55285-1	UTM-7	Total/NA	Water	8260C	
LCS 180-178470/5	Lab Control Sample	Total/NA	Water	8260C	
LCSD 180-178470/6	Lab Control Sample Dup	Total/NA	Water	8260C	
MB 180-178470/4	Method Blank	Total/NA	Water	8260C	

TestAmerica Pittsburgh
301 Alpha Drive

Pittsburgh, PA 15238
Phone: 412.963.7058 Fax: 412.963.2470

Chain of Custody Record

128419

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other:

Client Contact	Project Manager: Tom Marks	Site Contact: Tom Marks	Date: 6/1/16	COC No:
Company Name: Marks Environmental	Tel/Fax:	Lab Contact: Dave Dunlap	Carrier: Courier	1 of 1 COCs
Address: 140 Bollinger Rd	Analysis Turnaround Time			Sampler:
City/State/Zip: Elverson PA 19520	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 610 286 0802	TAT if different from Below _____			Walk-in Client:
Fax:	☒ 2 weeks			Lab Sampling:
Project Name: Lake Region Medical	☐ 1 week			
Site: Collegeville	☐ 2 days			Job No.:
P O #	☐ 1 day			

180-55285 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TCL / TCM	Sample Specific Notes:
UTM-7	5/31/16	1640	G	GW	3	N	N	✓	
TB-5/31/16	5/31/16	0800	G	W	2	N	N	✓	

Preservation Used: 1= Ice, 2= HCl, 3= H_2SO_4, 4=HNO_3, 5=NaOH, 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____		Therm ID No.: _____
Relinquished by:	Company: MEI	Date/Time: 5/31/16 0837	Received by:	Company:	Date/Time: 6/1/16 1155
Relinquished by:	Company: TA	Date/Time: 6/1/16 1610	Received by:	Company: TA	Date/Time: 6-2-16 9:24
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Page 13 of 14

6/8/2016

Login Sample Receipt Checklist

Client: Marks Environmental, Inc.

Job Number: 180-55285-1

Login Number: 55285
List Number: 1
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-58296-1
Client Project/Site: Marks, Lake Region Medical

For:
Marks Environmental, Inc.
140 Bollinger Road
Elverson, Pennsylvania 19520

Attn: Mr. Tom Marks

Authorized for release by:
9/19/2016 10:23:50 AM

David Dunlap, Senior Project Manager
(412)963-2432
dave.dunlap@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-58296-1

Job ID: 180-58296-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-58296-1

Receipt
The samples were received on 9/2/2016 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.5º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-58296-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-58296-1

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Pennsylvania	NELAP	3	02-00416	04-30-17

Sample Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-58296-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-58296-1	UTM-7	Water	08/31/16 11:25	09/02/16 09:00
180-58296-2	TRIP BLANK	Water	08/31/16 08:00	09/02/16 09:00

Method Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-58296-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-58296-1

Client Sample ID: UTM-7

Lab Sample ID: 180-58296-1

Date Collected: 08/31/16 11:25

Matrix: Water

Date Received: 09/02/16 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	187330	09/08/16 18:18	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: TRIP BLANK

Lab Sample ID: 180-58296-2

Date Collected: 08/31/16 08:00

Matrix: Water

Date Received: 09/02/16 09:00

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	187330	09/08/16 19:07	DLF	TAL PIT
	Instrument ID: CHHP5									

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Analysis

DLF = Donald Ferguson

Client Sample ID: UTM-7

Lab Sample ID: 180-58296-1

Date Collected: 08/31/16 11:25

Matrix: Water

Date Received: 09/02/16 09:00

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.29	J	1.0	0.22	ug/L			09/08/16 18:18	1
Trichloroethene	0.46	J	1.0	0.26	ug/L			09/08/16 18:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*72 - 120*		*09/08/16 18:18*	*1*
Dibromofluoromethane (Surr)	*109*		*77 - 127*		*09/08/16 18:18*	*1*
1,2-Dichloroethane-d4 (Surr)	*114*		*72 - 134*		*09/08/16 18:18*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*09/08/16 18:18*	*1*

Client Sample ID: TRIP BLANK

Lab Sample ID: 180-58296-2

Date Collected: 08/31/16 08:00

Matrix: Water

Date Received: 09/02/16 09:00

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.22	ug/L			09/08/16 19:07	1
Trichloroethene	ND		1.0	0.26	ug/L			09/08/16 19:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*72 - 120*		*09/08/16 19:07*	*1*
Dibromofluoromethane (Surr)	*108*		*77 - 127*		*09/08/16 19:07*	*1*
1,2-Dichloroethane-d4 (Surr)	*118*		*72 - 134*		*09/08/16 19:07*	*1*
Toluene-d8 (Surr)	*101*		*80 - 120*		*09/08/16 19:07*	*1*

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-187330/5
Matrix: Water
Analysis Batch: 187330

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.22	ug/L			09/08/16 12:26	1
Trichloroethene	ND		1.0	0.26	ug/L			09/08/16 12:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*72 - 120*		*09/08/16 12:26*	*1*
Dibromofluoromethane (Surr)	*113*		*77 - 127*		*09/08/16 12:26*	*1*
1,2-Dichloroethane-d4 (Surr)	*113*		*72 - 134*		*09/08/16 12:26*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*09/08/16 12:26*	*1*

Lab Sample ID: LCS 180-187330/8
Matrix: Water
Analysis Batch: 187330

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	9.33		ug/L		93	57 - 128
Trichloroethene	10.0	10.3		ug/L		103	79 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*90*		*72 - 120*
Dibromofluoromethane (Surr)	*100*		*77 - 127*
1,2-Dichloroethane-d4 (Surr)	*102*		*72 - 134*
Toluene-d8 (Surr)	*92*		*80 - 120*

QC Association Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-58296-1

GC/MS VOA

Analysis Batch: 187330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-58296-1	UTM-7	Total/NA	Water	8260C	
180-58296-2	TRIP BLANK	Total/NA	Water	8260C	
MB 180-187330/5	Method Blank	Total/NA	Water	8260C	
LCS 180-187330/8	Lab Control Sample	Total/NA	Water	8260C	

TestAmerica Pittsburgh
301 Alpha Drive
Pittsburgh, PA 15238
Phone: 412.963.7058 Fax: 412.963.2470

Chain of Custody Record

146709

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other:

Client Contact	Project Manager: THARRIS	Site Contact:	Date: 8/31/16	COC No:
Company Name: MARKS ENVIRONMENTAL	Tel/Fax:	Lab Contact: D. Dunlap	Carrier:	1 of 1 COCs
Address: 140 BOLLINGER RD.	Analysis Turnaround Time			Sampler:
City/State/Zip: FLUERSON PA 19520	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (610) 286-0802	TAT if different from Below			Walk-in Client:
Fax:	☒ 2 weeks			Lab Sampling:
Project Name:	☐ 1 week			
Site: LAKE REGION MEDICAL	☐ 2 days			Job / SDG No.:
PO #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TCE/TCA	Sample Specific Notes.
UTM-7	8/31/16	1125	G	H_2O	3	N	N	✓	
Trip Blank	8/31/16	0800	G	"	2	N	N	✓	

180-58296 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☑ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	MEI	9/1/16 0820		TA	9/1/16 1051
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
	TA/MP	9/1/16 1600	Deionized Water	TA	9-2-16 8:45
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

9/19/2016

Login Sample Receipt Checklist

Client: Marks Environmental, Inc.

Job Number: 180-58296-1

Login Number: 58296
List Number: 1
Creator: Kubit, Eric

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-60977-1
Client Project/Site: Marks, Lake Region Medical

For:
Marks Environmental, Inc.
140 Bollinger Road
Elverson, Pennsylvania 19520

Attn: Mr. Tom Marks

Authorized for release by:
11/25/2016 9:02:00 AM

David Dunlap, Senior Project Manager
(412)963-2432
dave.dunlap@testamericainc.com

Table of Contents

Case Narrative

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-60977-1

Job ID: 180-60977-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-60977-1

Receipt
The samples were received on 11/18/2016 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.7º C.

GC/MS VOA
Method(s) 8260C: The following samples were diluted to bring the concentration of target analytes within the calibration range: UTM-10 (180-60977-6) and UTM-1 (180-60977-11). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Definitions/Glossary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-60977-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
E	Result exceeded calibration range.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-60977-1

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Pennsylvania	NELAP	3	02-00416	04-30-17

Sample Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-60977-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-60977-1	UTM-4	Water	11/14/16 13:03	11/18/16 09:00
180-60977-2	UTM-6	Water	11/15/16 11:43	11/18/16 09:00
180-60977-3	UTM-7	Water	11/14/16 10:22	11/18/16 09:00
180-60977-4	UTM-8	Water	11/14/16 11:49	11/18/16 09:00
180-60977-5	UTM-9	Water	11/14/16 14:28	11/18/16 09:00
180-60977-6	UTM-10	Water	11/14/16 16:53	11/18/16 09:00
180-60977-7	UTM-14	Water	11/15/16 13:19	11/18/16 09:00
180-60977-8	UTM-17	Water	11/15/16 14:43	11/18/16 09:00
180-60977-9	UTM-20	Water	11/15/16 16:09	11/18/16 09:00
180-60977-10	UTM-22	Water	11/15/16 10:09	11/18/16 09:00
180-60977-11	UTM-1	Water	11/14/16 11:15	11/18/16 09:00
180-60977-12	UTM-11	Water	11/14/16 10:25	11/18/16 09:00
180-60977-13	UTM-23	Water	11/15/16 16:20	11/18/16 09:00
180-60977-14	TRIP BLANK	Water	11/14/16 08:00	11/18/16 09:00

Method Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-60977-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-60977-1

Client Sample ID: UTM-4
Date Collected: 11/14/16 13:03
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195015	11/21/16 19:17	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: UTM-6
Date Collected: 11/15/16 11:43
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195015	11/21/16 19:41	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: UTM-7
Date Collected: 11/14/16 10:22
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195015	11/21/16 20:29	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: UTM-8
Date Collected: 11/14/16 11:49
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195015	11/21/16 22:54	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: UTM-9
Date Collected: 11/14/16 14:28
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195015	11/21/16 23:18	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: UTM-10
Date Collected: 11/14/16 16:53
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195015	11/21/16 20:53	DLF	TAL PIT
	Instrument ID: CHHP5									

Lab Chronicle

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-60977-1

Client Sample ID: UTM-10
Date Collected: 11/14/16 16:53
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C	DL	10	5 mL	5 mL	195150	11/22/16 14:48	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: UTM-14
Date Collected: 11/15/16 13:19
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195015	11/21/16 21:41	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: UTM-17
Date Collected: 11/15/16 14:43
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195015	11/21/16 22:06	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: UTM-20
Date Collected: 11/15/16 16:09
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195015	11/21/16 22:30	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: UTM-22
Date Collected: 11/15/16 10:09
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-10
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195150	11/22/16 16:00	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: UTM-1
Date Collected: 11/14/16 11:15
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-11
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		100	5 mL	5 mL	195150	11/22/16 15:12	DLF	TAL PIT
	Instrument ID: CHHP5									

Lab Chronicle

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-60977-1

Client Sample ID: UTM-11

Date Collected: 11/14/16 10:25
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195150	11/22/16 16:24	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: UTM-23

Date Collected: 11/15/16 16:20
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195150	11/22/16 15:36	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: TRIP BLANK

Date Collected: 11/14/16 08:00
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195015	11/21/16 21:17	DLF	TAL PIT
	Instrument ID: CHHP5									

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Analysis

DLF = Donald Ferguson

Client Sample ID: UTM-4

Lab Sample ID: 180-60977-1
Date Collected: 11/14/16 13:03
Matrix: Water
Date Received: 11/18/16 09:00

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			11/21/16 19:17	1
Trichloroethene	**0.46**	**J**	1.0	0.20	ug/L			11/21/16 19:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*72 - 120*		*11/21/16 19:17*	*1*
Dibromofluoromethane (Surr)	*97*		*77 - 127*		*11/21/16 19:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*		*11/21/16 19:17*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*11/21/16 19:17*	*1*

Client Sample ID: UTM-6

Lab Sample ID: 180-60977-2
Date Collected: 11/15/16 11:43
Matrix: Water
Date Received: 11/18/16 09:00

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**1.7**		1.0	0.27	ug/L			11/21/16 19:41	1
Trichloroethene	**2.1**		1.0	0.20	ug/L			11/21/16 19:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*72 - 120*		*11/21/16 19:41*	*1*
Dibromofluoromethane (Surr)	*96*		*77 - 127*		*11/21/16 19:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*93*		*72 - 134*		*11/21/16 19:41*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*11/21/16 19:41*	*1*

Client Sample ID: UTM-7

Lab Sample ID: 180-60977-3
Date Collected: 11/14/16 10:22
Matrix: Water
Date Received: 11/18/16 09:00

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.27**	**J**	1.0	0.27	ug/L			11/21/16 20:29	1
Trichloroethene	**0.49**	**J**	1.0	0.20	ug/L			11/21/16 20:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*72 - 120*		*11/21/16 20:29*	*1*
Dibromofluoromethane (Surr)	*97*		*77 - 127*		*11/21/16 20:29*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*72 - 134*		*11/21/16 20:29*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*11/21/16 20:29*	*1*

Client Sample ID: UTM-8

Lab Sample ID: 180-60977-4
Date Collected: 11/14/16 11:49
Matrix: Water
Date Received: 11/18/16 09:00

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			11/21/16 22:54	1
Trichloroethene	**0.37**	**J**	1.0	0.20	ug/L			11/21/16 22:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*72 - 120*		*11/21/16 22:54*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 127*		*11/21/16 22:54*	*1*

Client Sample ID: UTM-8

Date Collected: 11/14/16 11:49
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-4
Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		72 - 134		11/21/16 22:54	1
Toluene-d8 (Surr)	103		80 - 120		11/21/16 22:54	1

Client Sample ID: UTM-9

Date Collected: 11/14/16 14:28
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-5
Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			11/21/16 23:18	1
Trichloroethene	**0.25**	**J**	1.0	0.20	ug/L			11/21/16 23:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		72 - 120		11/21/16 23:18	1
Dibromofluoromethane (Surr)	102		77 - 127		11/21/16 23:18	1
1,2-Dichloroethane-d4 (Surr)	97		72 - 134		11/21/16 23:18	1
Toluene-d8 (Surr)	103		80 - 120		11/21/16 23:18	1

Client Sample ID: UTM-10

Date Collected: 11/14/16 16:53
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-6
Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**170**	**E**	1.0	0.27	ug/L			11/21/16 20:53	1
Trichloroethene	**10**		1.0	0.20	ug/L			11/21/16 20:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		72 - 120		11/21/16 20:53	1
Dibromofluoromethane (Surr)	98		77 - 127		11/21/16 20:53	1
1,2-Dichloroethane-d4 (Surr)	91		72 - 134		11/21/16 20:53	1
Toluene-d8 (Surr)	108		80 - 120		11/21/16 20:53	1

Method: 8260C - Volatile Organic Compounds (GC/MS) - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**150**		10	2.7	ug/L			11/22/16 14:48	10
Trichloroethene	**9.2**	**J**	10	2.0	ug/L			11/22/16 14:48	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		72 - 120		11/22/16 14:48	10
Dibromofluoromethane (Surr)	97		77 - 127		11/22/16 14:48	10
1,2-Dichloroethane-d4 (Surr)	92		72 - 134		11/22/16 14:48	10
Toluene-d8 (Surr)	99		80 - 120		11/22/16 14:48	10

Client Sample ID: UTM-14

Date Collected: 11/15/16 13:19
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-7
Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**0.83**	**J**	1.0	0.27	ug/L			11/21/16 21:41	1

Client Sample ID: UTM-14

Lab Sample ID: 180-60977-7
Date Collected: 11/15/16 13:19
Matrix: Water
Date Received: 11/18/16 09:00

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	0.90	J	1.0	0.20	ug/L			11/21/16 21:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*72 - 120*		*11/21/16 21:41*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 127*		*11/21/16 21:41*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*		*11/21/16 21:41*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*11/21/16 21:41*	*1*

Client Sample ID: UTM-17

Lab Sample ID: 180-60977-8
Date Collected: 11/15/16 14:43
Matrix: Water
Date Received: 11/18/16 09:00

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	15		1.0	0.27	ug/L			11/21/16 22:06	1
Trichloroethene	21		1.0	0.20	ug/L			11/21/16 22:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*72 - 120*		*11/21/16 22:06*	*1*
Dibromofluoromethane (Surr)	*97*		*77 - 127*		*11/21/16 22:06*	*1*
1,2-Dichloroethane-d4 (Surr)	*92*		*72 - 134*		*11/21/16 22:06*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*11/21/16 22:06*	*1*

Client Sample ID: UTM-20

Lab Sample ID: 180-60977-9
Date Collected: 11/15/16 16:09
Matrix: Water
Date Received: 11/18/16 09:00

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	9.0		1.0	0.27	ug/L			11/21/16 22:30	1
Trichloroethene	8.6		1.0	0.20	ug/L			11/21/16 22:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*72 - 120*		*11/21/16 22:30*	*1*
Dibromofluoromethane (Surr)	*104*		*77 - 127*		*11/21/16 22:30*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*		*11/21/16 22:30*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*11/21/16 22:30*	*1*

Client Sample ID: UTM-22

Lab Sample ID: 180-60977-10
Date Collected: 11/15/16 10:09
Matrix: Water
Date Received: 11/18/16 09:00

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	3.0		1.0	0.27	ug/L			11/22/16 16:00	1
Trichloroethene	1.6		1.0	0.20	ug/L			11/22/16 16:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*72 - 120*		*11/22/16 16:00*	*1*
Dibromofluoromethane (Surr)	*100*		*77 - 127*		*11/22/16 16:00*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*72 - 134*		*11/22/16 16:00*	*1*

Client Sample ID: UTM-22

Date Collected: 11/15/16 10:09
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-10

Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Toluene-d8 (Surr)	*99*		*80 - 120*		*11/22/16 16:00*	*1*

Client Sample ID: UTM-1

Date Collected: 11/14/16 11:15
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-11

Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	**120**		100	27	ug/L			11/22/16 15:12	100
Trichloroethene	**1300**		100	20	ug/L			11/22/16 15:12	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*72 - 120*		*11/22/16 15:12*	*100*
Dibromofluoromethane (Surr)	*97*		*77 - 127*		*11/22/16 15:12*	*100*
1,2-Dichloroethane-d4 (Surr)	*91*		*72 - 134*		*11/22/16 15:12*	*100*
Toluene-d8 (Surr)	*97*		*80 - 120*		*11/22/16 15:12*	*100*

Client Sample ID: UTM-11

Date Collected: 11/14/16 10:25
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-12

Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			11/22/16 16:24	1
Trichloroethene	**0.64**	**J**	1.0	0.20	ug/L			11/22/16 16:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*72 - 120*		*11/22/16 16:24*	*1*
Dibromofluoromethane (Surr)	*101*		*77 - 127*		*11/22/16 16:24*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*72 - 134*		*11/22/16 16:24*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*11/22/16 16:24*	*1*

Client Sample ID: UTM-23

Date Collected: 11/15/16 16:20
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-13

Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			11/22/16 15:36	1
Trichloroethene	ND		1.0	0.20	ug/L			11/22/16 15:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*72 - 120*		*11/22/16 15:36*	*1*
Dibromofluoromethane (Surr)	*99*		*77 - 127*		*11/22/16 15:36*	*1*
1,2-Dichloroethane-d4 (Surr)	*97*		*72 - 134*		*11/22/16 15:36*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*11/22/16 15:36*	*1*

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-60977-1

Client Sample ID: TRIP BLANK
Date Collected: 11/14/16 08:00
Date Received: 11/18/16 09:00

Lab Sample ID: 180-60977-14
Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			11/21/16 21:17	1
Trichloroethene	ND		1.0	0.20	ug/L			11/21/16 21:17	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*72 - 120*		*11/21/16 21:17*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 127*		*11/21/16 21:17*	*1*
1,2-Dichloroethane-d4 (Surr)	*96*		*72 - 134*		*11/21/16 21:17*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*		*11/21/16 21:17*	*1*

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-195015/8
Matrix: Water
Analysis Batch: 195015

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			11/21/16 13:02	1
Trichloroethene	ND		1.0	0.20	ug/L			11/21/16 13:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*72 - 120*		*11/21/16 13:02*	*1*
Dibromofluoromethane (Surr)	*98*		*77 - 127*		*11/21/16 13:02*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*72 - 134*		*11/21/16 13:02*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*11/21/16 13:02*	*1*

Lab Sample ID: LCS 180-195015/10
Matrix: Water
Analysis Batch: 195015

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	10.1		ug/L		101	57 - 128
Trichloroethene	10.0	10.3		ug/L		103	79 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*72 - 120*
Dibromofluoromethane (Surr)	*94*		*77 - 127*
1,2-Dichloroethane-d4 (Surr)	*88*		*72 - 134*
Toluene-d8 (Surr)	*106*		*80 - 120*

Lab Sample ID: MB 180-195150/4
Matrix: Water
Analysis Batch: 195150

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			11/22/16 11:40	1
Trichloroethene	ND		1.0	0.20	ug/L			11/22/16 11:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*72 - 120*		*11/22/16 11:40*	*1*
Dibromofluoromethane (Surr)	*93*		*77 - 127*		*11/22/16 11:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*72 - 134*		*11/22/16 11:40*	*1*
Toluene-d8 (Surr)	*102*		*80 - 120*		*11/22/16 11:40*	*1*

Lab Sample ID: LCS 180-195150/7
Matrix: Water
Analysis Batch: 195150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1,1-Trichloroethane	10.0	9.75		ug/L		98	57 - 128
Trichloroethene	10.0	9.93		ug/L		99	79 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*72 - 120*

Method: 8260C - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 180-195150/7
Matrix: Water
Analysis Batch: 195150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Dibromofluoromethane (Surr)	93		77 - 127
1,2-Dichloroethane-d4 (Surr)	88		72 - 134
Toluene-d8 (Surr)	107		80 - 120

QC Association Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-60977-1

GC/MS VOA

Analysis Batch: 195015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-60977-1	UTM-4	Total/NA	Water	8260C	
180-60977-2	UTM-6	Total/NA	Water	8260C	
180-60977-3	UTM-7	Total/NA	Water	8260C	
180-60977-4	UTM-8	Total/NA	Water	8260C	
180-60977-5	UTM-9	Total/NA	Water	8260C	
180-60977-6	UTM-10	Total/NA	Water	8260C	
180-60977-7	UTM-14	Total/NA	Water	8260C	
180-60977-8	UTM-17	Total/NA	Water	8260C	
180-60977-9	UTM-20	Total/NA	Water	8260C	
180-60977-14	TRIP BLANK	Total/NA	Water	8260C	
MB 180-195015/8	Method Blank	Total/NA	Water	8260C	
LCS 180-195015/10	Lab Control Sample	Total/NA	Water	8260C	

Analysis Batch: 195150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-60977-6 - DL	UTM-10	Total/NA	Water	8260C	
180-60977-10	UTM-22	Total/NA	Water	8260C	
180-60977-11	UTM-1	Total/NA	Water	8260C	
180-60977-12	UTM-11	Total/NA	Water	8260C	
180-60977-13	UTM-23	Total/NA	Water	8260C	
MB 180-195150/4	Method Blank	Total/NA	Water	8260C	
LCS 180-195150/7	Lab Control Sample	Total/NA	Water	8260C	

TestAmerica Pittsburgh
301 Alpha Drive
450-KOP
Pittsburgh, PA 15238
Phone: 412.963.7058 Fax: 412.963.2470

Chain of Custody Record

170086

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☐ Other:

Client Contact	Project Manager: Tom Marks	Site Contact: T. Marks	Date: 11/15/16	COC No:
Company Name: Marks Environmental	Tel/Fax: —	Lab Contact: D. Dunlap	Carrier: Courier	1 of 2 COCs
Address: 140 Bollinger Rd	Analysis Turnaround Time			Sampler: M. Ketterer
City/State/Zip: Elverson PA 19520	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: (610) 286-0802	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Lake Region Medical	☐ 1 week			
Site: Collegeville, PA	☐ 2 days			
PO #	☐ 1 day			

180-60977 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TCE/TCA	Notes:
UTM-4	11/14/16	1303	G	H_2O	3	N		✓	
UTM-6	11/15/16	1143			3			✓	
UTM-7	11/14/16	1022			3			✓	
UTM-8		1149			3			✓	
UTM-9		1428			3			✓	
UTM-10		1653			3			✓	
UTM-14	11/15/16	1319			3			✓	
UTM-17		1443			3			✓	
UTM-20		1609			3			✓	
~~UTM-21~~ TRM UTM-22		1009			3			✓	
UTM-1	11/14/16	1115			3			✓	
UTM-11		1025			3			✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ | Therm ID No.: _____

	Company	Date/Time		Company	Date/Time
Relinquished by: Elizabeth B. Marks	Marks Environmental	11-17-16 / 1030	Received by:		11/17/16 1030
Relinquished by:	TAKP	11/17/16 1530	Received by: Debbie Watson	TAP	11-18-16 900
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Pittsburgh
301 Alpha Drive
Pittsburgh, PA 15238
Phone: 412.963.7058 Fax: 412.963.2470

450-KOP

Chain of Custody Record

170091

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☐ Other:

Client Contact
Company Name: Marks Environmental
Address: 140 Bollinger Rd
City/State/Zip: Elverson PA 19520
Phone: (610) 286-0802
Fax: —
Project Name: Lake Region Medical
Site: Collegeville, PA
P O # —

Project Manager: Tom Marks
Tel/Fax: (610) 286-0802
Site Contact: T. Marks
Lab Contact: D. Dunlap
Date: 11/15/16
Carrier: Courier

COC No: 2 of 2 COCs
Sampler: M. Ketterer
For Lab Use Only:
Walk-in Client:
Lab Sampling:
Job / SDG No.:

Analysis Turnaround Time
☐ CALENDAR DAYS ☑ WORKING DAYS
TAT if different from Below ______
☑ 2 weeks
☐ 1 week
☐ 2 days
☐ 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	TCE/TCA	Sample Specific Notes:
UTM-23	11/15/16	1620	G	H_2O	3	N		✓	
TRIP BLANK	11/14/16	0800	↓	↓	3	N		✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ______

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for ______ Months

Special Instructions/QC Requirements & Comments:
E

Custody Seals Intact: ☐ Yes ☐ No
Custody Seal No.:
Cooler Temp. (°C): Obs'd: ______ Corr'd: ______ Therm ID No.: ______

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Elizabeth B. Marks	Marks Environ.	11-17-16 1035	[signature]	TA	11/17/16 1030
Julie G. Gilmore	TAKOP	11/17/16 1530	Debbie Watson	TA P	11-18-16 900
			Received in Laboratory by:		

Login Sample Receipt Checklist

Client: Marks Environmental, Inc.

Job Number: 180-60977-1

Login Number: 60977
List Number: 1
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	1 vv rec broken for UTM-6
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-61185-1
Client Project/Site: Marks, Lake Region Medical

For:
Marks Environmental, Inc.
140 Bollinger Road
Elverson, Pennsylvania 19520

Attn: Mr. Tom Marks

Authorized for release by:
12/2/2016 9:41:01 AM

David Dunlap, Senior Project Manager
(412)963-2432
dave.dunlap@testamericainc.com

Table of Contents

Case Narrative

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-61185-1

Job ID: 180-61185-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-61185-1

Receipt
The sample was received on 11/29/2016 8:30 AM; the sample arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.3º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-61185-1

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-61185-1

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Pennsylvania	NELAP	3	02-00416	04-30-17

Sample Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-61185-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-61185-1	UTM-21	Water	11/25/16 14:30	11/29/16 08:30

Method Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-61185-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-61185-1

Client Sample ID: UTM-21

Date Collected: 11/25/16 14:30
Date Received: 11/29/16 08:30

Lab Sample ID: 180-61185-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	195804	11/30/16 16:56	PJJ	TAL PIT
	Instrument ID: CHHP5									

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Analysis

PJJ = Patrick Journet

Client Sample ID: UTM-21
Date Collected: 11/25/16 14:30
Date Received: 11/29/16 08:30

Lab Sample ID: 180-61185-1
Matrix: Water

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.91	J	1.0	0.27	ug/L			11/30/16 16:56	1
Trichloroethene	0.47	J	1.0	0.20	ug/L			11/30/16 16:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*92*		*72 - 120*		*11/30/16 16:56*	*1*
Dibromofluoromethane (Surr)	*93*		*77 - 127*		*11/30/16 16:56*	*1*
1,2-Dichloroethane-d4 (Surr)	*95*		*72 - 134*		*11/30/16 16:56*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*11/30/16 16:56*	*1*

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-195804/6
Matrix: Water
Analysis Batch: 195804

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			11/30/16 11:43	1
Trichloroethene	ND		1.0	0.20	ug/L			11/30/16 11:43	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*87*		*72 - 120*		*11/30/16 11:43*	*1*
Dibromofluoromethane (Surr)	*87*		*77 - 127*		*11/30/16 11:43*	*1*
1,2-Dichloroethane-d4 (Surr)	*91*		*72 - 134*		*11/30/16 11:43*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*		*11/30/16 11:43*	*1*

Lab Sample ID: LCS 180-195804/4
Matrix: Water
Analysis Batch: 195804

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1,1-Trichloroethane			10.0	9.56		ug/L		96	57 - 128		
Trichloroethene			10.0	9.46		ug/L		95	79 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*72 - 120*
Dibromofluoromethane (Surr)	*86*		*77 - 127*
1,2-Dichloroethane-d4 (Surr)	*90*		*72 - 134*
Toluene-d8 (Surr)	*107*		*80 - 120*

QC Association Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-61185-1

GC/MS VOA

Analysis Batch: 195804

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-61185-1	UTM-21	Total/NA	Water	8260C	
MB 180-195804/6	Method Blank	Total/NA	Water	8260C	
LCS 180-195804/4	Lab Control Sample	Total/NA	Water	8260C	

TestAmerica Pittsburgh
301 Alpha Drive
Pittsburgh, PA 15238
Phone: 412.963.7058 Fax: 412.963.2470

Chain of Custody Record

170087

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other:

Client Contact	Project Manager: Tom Marks	Site Contact: T. Marks	Date: 11/28/16	COC No:
Company Name: Marks Environmental	Tel/Fax: —	Lab Contact: D. Dunlap	Carrier: FedX	1 of 1 COCs
Address: 140 Bollinger Rd	Analysis Turnaround Time			Sampler:
City/State/Zip: Elverson, PA 19520	☐ CALENDAR DAYS ☒ WORKING DAYS			For Lab Use Only:
Phone: (610) 286-0862	TAT if different from Below ____			Walk-in Client:
Fax:	☒ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			Lab Sampling:
Project Name: LRM				Job / SDG No.:
Site: Collegeville				
P O #				

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	TCE/TCA	Sample Specific Notes:
VTM-21	11/25/16	1430	G	GW	3	N	N	✓	

180-61185 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other ____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ____ Corr'd: ____ | Therm ID No.: ____

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by:	MEI	11/28/16 1300	Received by:	FedX	11/29/16 830
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: Marks Environmental, Inc.

Job Number: 180-61185-1

Login Number: 61185
List Number: 1
Creator: Kovitch, Christina M

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Pittsburgh
301 Alpha Drive
RIDC Park
Pittsburgh, PA 15238
Tel: (412)963-7058

TestAmerica Job ID: 180-63931-1
Client Project/Site: Marks, Lake Region Medical

For:
Marks Environmental, Inc.
140 Bollinger Road
Elverson, Pennsylvania 19520

Attn: Mr. Tom Marks

Authorized for release by:
3/9/2017 7:45:22 AM

David Dunlap, Senior Project Manager
(412)963-2432
david.dunlap@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Case Narrative

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-63931-1

Job ID: 180-63931-1

Laboratory: TestAmerica Pittsburgh

Narrative

Job Narrative
180-63931-1

Receipt
The samples were received on 3/2/2017 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9º C.

GC/MS VOA
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Certification Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-63931-1

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Pennsylvania	NELAP	3	02-00416	04-30-17

Sample Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-63931-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
180-63931-1	UTM-7	Water	02/27/17 12:20	03/02/17 09:20
180-63931-2	TB	Water	02/27/17 08:00	03/02/17 09:20

Method Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-63931-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds (GC/MS)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Lab Chronicle

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-63931-1

Client Sample ID: UTM-7

Lab Sample ID: 180-63931-1

Date Collected: 02/27/17 12:20

Matrix: Water

Date Received: 03/02/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	204777	03/07/17 16:39	DLF	TAL PIT
	Instrument ID: CHHP5									

Client Sample ID: TB

Lab Sample ID: 180-63931-2

Date Collected: 02/27/17 08:00

Matrix: Water

Date Received: 03/02/17 09:20

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	5 mL	5 mL	204777	03/07/17 12:39	DLF	TAL PIT
	Instrument ID: CHHP5									

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Analyst References:

Lab: TAL PIT

Batch Type: Analysis

DLF = Donald Ferguson

Client Sample ID: UTM-7

Lab Sample ID: 180-63931-1

Date Collected: 02/27/17 12:20

Matrix: Water

Date Received: 03/02/17 09:20

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			03/07/17 16:39	1
Trichloroethene	ND		1.0	0.20	ug/L			03/07/17 16:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*72 - 120*		*03/07/17 16:39*	*1*
Dibromofluoromethane (Surr)	*102*		*77 - 127*		*03/07/17 16:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*72 - 134*		*03/07/17 16:39*	*1*
Toluene-d8 (Surr)	*100*		*80 - 120*		*03/07/17 16:39*	*1*

Client Sample ID: TB

Lab Sample ID: 180-63931-2

Date Collected: 02/27/17 08:00

Matrix: Water

Date Received: 03/02/17 09:20

Method: 8260C - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			03/07/17 12:39	1
Trichloroethene	ND		1.0	0.20	ug/L			03/07/17 12:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*72 - 120*		*03/07/17 12:39*	*1*
Dibromofluoromethane (Surr)	*96*		*77 - 127*		*03/07/17 12:39*	*1*
1,2-Dichloroethane-d4 (Surr)	*103*		*72 - 134*		*03/07/17 12:39*	*1*
Toluene-d8 (Surr)	*104*		*80 - 120*		*03/07/17 12:39*	*1*

Method: 8260C - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 180-204777/6
Matrix: Water
Analysis Batch: 204777

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	ND		1.0	0.27	ug/L			03/07/17 11:40	1
Trichloroethene	ND		1.0	0.20	ug/L			03/07/17 11:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*72 - 120*		*03/07/17 11:40*	*1*
Dibromofluoromethane (Surr)	*98*		*77 - 127*		*03/07/17 11:40*	*1*
1,2-Dichloroethane-d4 (Surr)	*101*		*72 - 134*		*03/07/17 11:40*	*1*
Toluene-d8 (Surr)	*98*		*80 - 120*		*03/07/17 11:40*	*1*

Lab Sample ID: LCS 180-204777/9
Matrix: Water
Analysis Batch: 204777

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,1,1-Trichloroethane			10.0	9.84		ug/L		98	57 - 128		
Trichloroethene			10.0	9.60		ug/L		96	79 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*91*		*72 - 120*
Dibromofluoromethane (Surr)	*90*		*77 - 127*
1,2-Dichloroethane-d4 (Surr)	*90*		*72 - 134*
Toluene-d8 (Surr)	*97*		*80 - 120*

QC Association Summary

Client: Marks Environmental, Inc.
Project/Site: Marks, Lake Region Medical

TestAmerica Job ID: 180-63931-1

GC/MS VOA

Analysis Batch: 204777

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
180-63931-1	UTM-7	Total/NA	Water	8260C	
180-63931-2	TB	Total/NA	Water	8260C	
MB 180-204777/6	Method Blank	Total/NA	Water	8260C	
LCS 180-204777/9	Lab Control Sample	Total/NA	Water	8260C	

TestAmerica Pittsburgh

301 Alpha Drive

Pittsburgh, PA 15238
Phone: 412.963.7058 Fax: 412.963.2470

Chain of Custody Record

171204

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☒ Other:

Client Contact	Project Manager: Tom Marks	Site Contact: Tom Marks	Date: 2-27-17	COC No:
Company Name: MARKS ENVIRONMENTAL	Tel/Fax:	Lab Contact: D. DUNLAP	Carrier: Fed X	1 of 1 COCs
Address: 140 Bollinger Rd.	Analysis Turnaround Time			Sampler:
City/State/Zip: Elverson, PA 19520	☒ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 610-286-0802	TAT if different from Below _____			
Fax:	☒ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day			
Project Name: LRM				
Site: Collegeville PA				
PO #				

180-63931 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	VOA VIAL-HYDRO ACL TEST CA	Sample Specific Notes:
LTM-7	2-27-17	1220	G	GW	3	N	N	✓	
TB	2-27-17	0800	G	W	2	N	N	✓	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ | Therm ID No.: _____

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	MEI	2/27/17 1700	[signature]	TAL	3-2-17 9:20
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: Marks Environmental, Inc.

Job Number: 180-63931-1

Login Number: 63931
List Number: 1
Creator: Watson, Debbie

List Source: TestAmerica Pittsburgh

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Appendix B

Statistical Analysis

Appendix B

Statistical Analysis for UTM-4 to Address Result Over 5 ug/L TCE

If any analytical result for a POC well is above the MCL, the first action is triggered to complete a statistical test to determine if the following is true:

> *If the analytical result and/or the 95% UCL calculated based on the last 8 monitoring results are below the MCL, no further action (other than routine monitoring) is needed.*

The 95% UCL was calculated from the last 8 results as follows:

	UTM-4
Sampling Date/Statistical Parameter	**TCE**
5/1/14	1.7
8/1/14	0.78
11/1/14	0.6
2/1/15	0.91
5/15/15	1.6
11/3/15	0.72
2/1/16	11
11/3/16	0.46
Count (n)	8
Standard Deviation (σ)	3.58
Sample Mean (x)	2.22
95% Confidence Interval	2.48
95% Lower Confidence Limit	**-0.26**
95% Upper Confidence Limit (UCL)	**4.70**